

MODEL 25T/H - INCREMENTAL ENCODER



Ø2.5"

FEATURES

- 2.5" Opto-ASIC Encoder with a Low Profile (2.0")
- Standard Bore Sizes Ranging from 0.625" to 1.125"
- Metric Bore Sizes Ranging from 6 mm to 28 mm
- Single Replacement Solution for 2.0" to 3.5" Encoders
- Resolutions to 10,000 CPR; Frequencies to 1 MHz
- Versatile Flexible Mounting Options
- RoHS Compliant

Representing the next generation of high performance encoders, the Model 25T Accu-Coder® features the largest thru-bore available in a 2.5" encoder, able to mount directly on shafts as large as 1.125" (28 mm). With resolutions up to 10,000 CPR and frequencies up to 1MHz, this industrial strength encoder is perfect for fast revving motors. The 25T features the next generation of EPC's proprietary Opto-ASIC sensor, which provides superior accuracy and precision counts. The injection molded housing, made from EPC's custom blend of nylon composites, is grooved with "cooling fins" and can tolerate the extreme heat of the motion-control industry. With sealing available up to IP66 and many new rugged flexible mounting options, the Model 25T can perform in demanding industrial environments.

COMMON APPLICATIONS

Motor-Mounted Feedback and Vector Control, Specialty Machines, Robotics, Web Process Control, Paper and Printing, High Power Motors

MODEL 25T/H ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

Mechanical				Electrical				Optional Features							
Leave Blank for Standard Options				-20° to 85° C Std				IP50 Std			None Std				
25T	42	SE	0500	N	V1	R	OC	SMW							
HOUSING OPTION (Leave Blank for Standard) Standard C Corrosion Resistant				CYCLES PER REVOLUTION See <i>CPR Options</i> below Price Adder for Resolutions Over 2000				INPUT VOLTAGE V1 5 to 28 VDC				OUTPUT TYPE 5 - 28V In/Out³ OC Open Collector PP Push-Pull HV Line Driver ⁴ PU Pull-Up Resistor ⁵ 8 - 28V In/5V Out⁶ H5 Line Driver ⁴ P5 Push-Pull			
MODEL 25T Thru-Bore 25H Hollow Bore (Blind)				MOUNTING SE 2.25" to 2.75" B.C. 3-point Flex Mount SG 3.50" to 5.90" B.C. (4.5" C-face) Tether Arm Kit SJ 3.50" to 8.10" B.C. (8.5" C-face) Tether Arm Kit SH 2.72" to 3.42" B.C. (Block & Pin) Tether Arm Kit				OPERATING TEMPERATURE T1 -20° to 85° C (Std) T4 -20° to 105° C ¹¹				CERTIFICATION None (Std) CE CE Marked ¹²			
BORE SIZE¹				NUMBER OF CHANNELS¹				CONNECTOR TYPE⁷				SEALING IP50 (Standard) S3 IP66			
01 1/4", 0.250"	04 6 mm			Q Quadrature A & B				SMW 6-pin MS ^{4,8}							
03 5/16", 0.3125"	14 8 mm			R Quadrature A & B with Index				SMY 7-pin MS ⁴							
02 3/8", 0.375"	10 10 mm			K Reverse Quadrature A & B				SMX 10-pin MS							
05 1/2", 0.500"	09 11 mm			D Reverse Quadrature A & B with Index				SMJ 5-pin M12 ⁴							
11 5/8", 0.625"	12 12 mm			See http://www.encoder.com/literature/index-phasing.pdf for additional options and waveforms.				SMK 8-pin M12 Standard Wiring							
34 3/4", 0.750"	13 14 mm			NOTES:				SMZ 8-pin M12 Optional Wiring							
78 7/8", 0.875"	15 15 mm			1 Contact Customer Service for additional options.				SMH 10-pin Bayonet ⁹							
40 1", 1.000"	16 16 mm			2 Reverse Quadrature not available with PU output type.				F00 Gland, 24" Cable ¹⁰							
42 1-1/8", 1.125"	17 17 mm			3 24 VDC max for T4 temperature option.				9D 9-pin D-Sub ⁹							
	18 18 mm			4 Line Driver not available with 5-pin M12 or 6-pin MS style connectors. Available with 7-pin MS style connector without index Z.											
	19 19 mm			5 With Input Voltage above 16 VDC, operating temperature is limited to 85° C max.											
	20 20 mm			6 Standard operating temperature only.											
	24 24 mm			7 For mating connectors, cables, and cordsets see Accessories at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see Connector Pin Configuration Diagrams at encoder.com.											
	25 25 mm			8 Not available with CE option.											
	28 28 mm			9 Not available with corrosion resistant option.											

MODEL 25T/H CPR OPTIONS

0001	0002	0003	0005	0008	0010	0011	0012
0024	0025	0030	0032	0050	0060	0064	0070
0080	0100	0105	0115	0120	0125	0150	0180
0192	0200	0240	0250	0256	0300	0336	0360
0500	0512	0600	0625	1000	1024	1200	1250
1800	2000	2048	2400	2500	3600	4096	5000
7200	8192	10,000					

Contact Customer Service for other disk resolutions.

11 Contact Customer Service for availability on resolutions < 360 CPR.
12 Please refer to Technical Bulletin [TB100: When to Choose the CE Mark](#) at encoder.com. Contact Customer Service for availability.

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MODEL 25T/H SPECIFICATIONS

Electrical

Input Voltage..... 4.75 to 28 VDC max for temperatures up to 85° C
 4.75 to 24 VDC max for temperatures between 85° and 105° C

Input Current 100 mA max with no output load

Output Format Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. See *Waveform Diagram*, below.

Output Types..... Open Collector – 20 mA max per channel
 Pull Up – Open Collector with 2.2K ohm internal resistor, 20 mA max per channel
 Push-Pull – 20 mA max per channel
 Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index..... Once per revolution.
 1 to 360 CPR: Ungated
 361 to 10,000 CPR: Gated to output A
 See *Waveform Diagram*, below.

Max Frequency 250 kHz for 1 to 2500 CPR
 500 kHz for 2501 to 5000 CPR
 1 MHz for 5001 to 10,000 CPR

Electrical Protection .. Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.

CE Testing Emissions tested per EN61000-6-3:2001 as applicable. Immunity tested per EN6100-6-2: 2005 as applicable.

Min. Edge Sep 45° electrical min, 63° electrical or better typical

Rise Time..... Less than 1 microsecond

Accuracy..... Within 0.1° mechanical from one cycle to any other cycle, or 6 arc minutes.

Mechanical

Max Shaft Speed..... 6000 RPM, 8000 RPM intermittent
 4000 RPM for IP66 seal option

Bore Tolerance -0.0000"/+0.0008"

User Shaft Tolerances
 Radial Runout 0.005" max
 Axial Endplay..... ±0.050" max

Starting Torque IP50 sealing: 1.0 oz-in typical
 IP66 sealing: 4.0 oz-in typical
 Note: Add 1.0 oz-in typical for -20° C operation

Moment of Inertia ... 7.6 x 10⁻⁴ oz-in²

Housing Proprietary nylon composite

Weight..... 8 oz typical

Environmental

Storage Temp..... -20° to 85° C

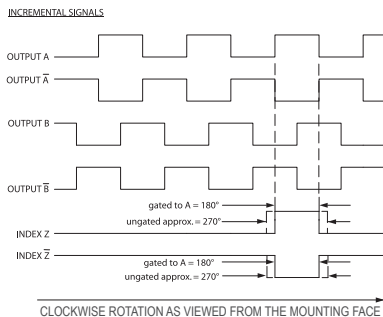
Humidity..... 98% RH non-condensing

Vibration..... 20 g @ 5 to 2000 Hz

Shock..... 80 g @ 11 ms duration

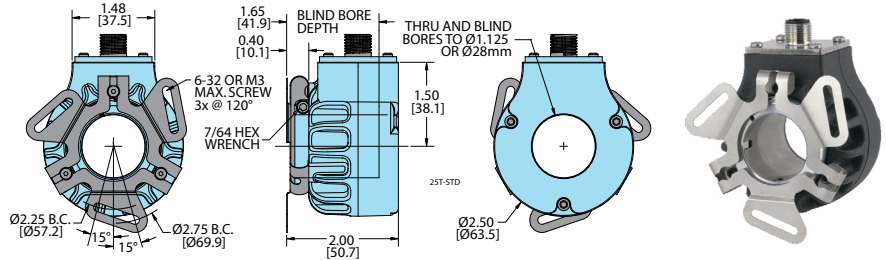
Sealing..... IP50, IP66 with shaft seals at both ends

WAVEFORM DIAGRAM

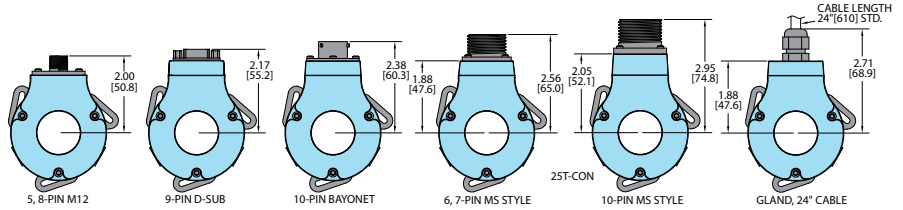


NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS A, B, Z FOR HV AND H5 OUTPUTS ONLY.

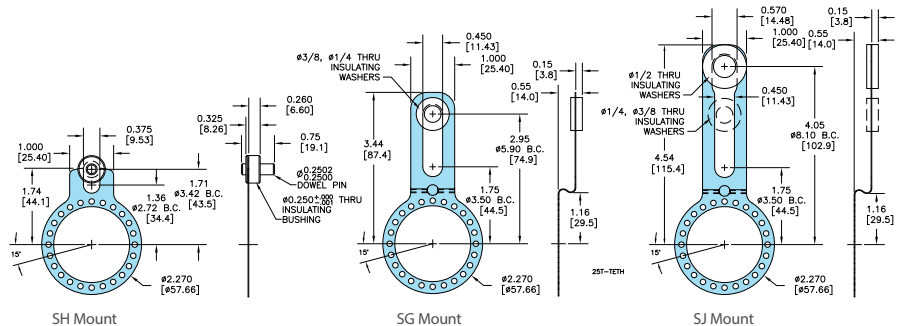
MODEL 25T/H 3-POINT FLEX MOUNT (SE)



MODEL 25T/H CONNECTOR OPTIONS



MODEL 25T/H MOUNTING OPTIONS



All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.
 Note: Color chart is for Gland Cables only.

Function	5-pin M12*	8-pin M12* Standard Wiring	8-pin M12* Optional Wiring	10-pin MS	7-pin MS HV, H5	7-pin MS PU, PP, OC, P5	6-pin MS PU, PP, OC, P5	9-pin D-sub	10-pin Bayonet HV, H5, OD, PU, PP, OC, P5	Gland Cable** Wire Color
Com	3	7	1	F	F	F	A, F	9	F	Black
+VDC	1	2	2	D	D	D	B	1	D	White
A	4	1	3	A	A	A	D	2	A	Brown
A'	-	3	4	H	C	-	-	3	H	Yellow
B	2	4	5	B	B	B	E	4	B	Red
B'	-	5	6	I	E	-	-	5	J	Green
Z	5	6	7	C	-	C	C	6	C	Orange
Z'	-	8	8	J	-	-	-	7	K	Blue
Case	-	-	-	G	G	G	-	8	G	-
Shield	-	-	-	-	-	-	-	-	-	Bare***

*CE Option: Use cable cord set with shield connected to M12 connector coupling nut.

**Standard cable is 24 AWG conductors with foil and braid shield.

*** CE Option: Cable shield (bare wire) is connected to internal case.

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